

REMARKS

Claims 4-14 were pending, claims 1-3 have been previously cancelled. Claims 15 -17 have been added.

It is believed that examiner intended to reject claims 4-14 and not just 4-13 as indicated. Claims 4-14 were rejected under 35 USC 103a as unpatentable over admitted prior art of Figures 6 and 7 in view of Cohen. The admitted prior art split ring 510 was not self lubricating and was a composite material that relied upon water pressure from pump 550 to lubricate the seal, often these prior art seals overheat and glaze over leading to failure. The two halves of the prior art seal 510 were not joined at a polished surface as argued by examiner, the two halves were molded separately and the joint surface was left unmachined. Thus the prior art does not show two halves of a split ring joined at a polished surface as claimed. The reason for the current halves mating at a polished surface is to maintain diametrical accuracy during the manufacturing and remanufacturing processes. The pair can later be remounted on a lathe and the face can be remanufactured and repolished using the threaded holes and the polished surfaces between the pairs as reference points to reset the seal on the lathe fixture. This makes the current split ring seal repairable unlike the prior art which is not repairable. The current invention can be remounted in a lathe fixture and has sufficient diametrical accuracy to allow the seal face to be re-turned.

The admitted prior art relies on Delrin (Trade name for Acetal) inserts for the shaft wear surface. Applicant claims a fibrous material. Delrin is not fibrous as claimed. Specifically, applicant discloses (and in claims 7 and 13 claims) a fibrous material that is polished in one direction and then the other direction to remove fibers from the polished surface. It would not be necessary to polish Delrin, but if Delrin were polished there would be no benefit to polishing in one direction and then the other because Delrin does not have a fiber base as described, therefore Delrin is not considered to be fiber material as disclosed.

The admitted prior art is not formed from a single blank of fiber material as disclosed and claimed. In fact none of the prior art disclose any portion to be fiber, such as Simsite as disclosed. The finely machined seal face made from a

single blank of fiber is what gives the current invention its advantageous properties, not only of being strong, and self lubricating, but also of being repairable.

The admitted prior art uses Delrin inserts to create the shaft wear surface. As disclosed this arrangement requires an additional manufacturing step and has been found to create an undesirable wear groove on the propeller drive shaft that can require an expensive shaft replacement. The admitted prior art therefore does not show integrally formed raised areas forming the shaft wear surface. Integral raised wear surfaces give greater accuracy and more wear area, yielding longer life and less shaft damage, than is possible with inserts.

Examiner combined the admitted prior art with Cohen to disclose a self lubricating polymer matrix. However, as noted above, a polymer is not a fiber as disclosed and claimed. Cohen discloses a matrix but not a fiber as disclosed. Cohen does not have a fiber base that would be effected by polishing in one direction and then the other as disclosed and claimed.

New claim 15 and 16 include the steps of polishing the planar surface where the two halves are joined and the step of polishing in a first direction and reversing to polish in a second direction with a finer grit. This step of polishing and reversing is not shown in the prior art. Examiner had previously used Walker modified in view of Cohen and Scobie to reject similar original claims 1-3 now cancelled.

Like all the prior art Walker and Scobie do not show fiber material.

Scobie shows polishing in one direction but the material of Scobie is not fiber. Examiner argued, in a prior action, that 'In reversing direction one can make sure the face is very well polished', but it is not necessary to reverse direction to do that. Reversing the direction of Scobie would not accomplish anything toward a better polish, only in respect to polishing a fiber seal face could the benefit of reversing direction be experienced. Reversing direction in a non-fiber material has no effect on the process.

New claim 17 includes the steps of remounting the seal face to the lathe fixture and repolishing it. These are the steps of remanufacturing not allowed for in prior art split ring seals. A split ring can usually not be remanufactured.

Examiner shows bolts in Scobie but he does not show the result which is to obtain a seal face that can be remanufactured after a first use. The bolts AND polished face between the two halves give the unexpected result that the split ring face can be resurfaced to the degree of accuracy needed for reuse. Walker does disclose machining mating surfaces on a split ring but does not show the result of being rebuildable and does not show the matching on a fiber seal.

Both Scobie and Walker actually teach one piece rings. The ring of Walker is split, but it is always bolted and pinned together except at installation. The split ring of the current invention is truly split at all times. During the machining the split ring requires bolts holes and a fixture to connect it to the lathe. In use the split ring of the current invention is also split, not connected with pins and bolts as with Walker. This is one reason why the polished mating surface of the present invention, as disclosed and claimed, is important, without the polished face there would be no accuracy in working with the piece.

For the reasons listed above, it is felt that all the claims are now in condition for allowance.

Conclusion

It is believed that the above amendments of the claims clarifies the scope of the claims, and at the same time indicates the novelty and inventive step of the claims as amended.

In the event that you wish to discuss any aspect of this response, please contact the agent at the telephone number identified below.

Respectfully submitted,


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